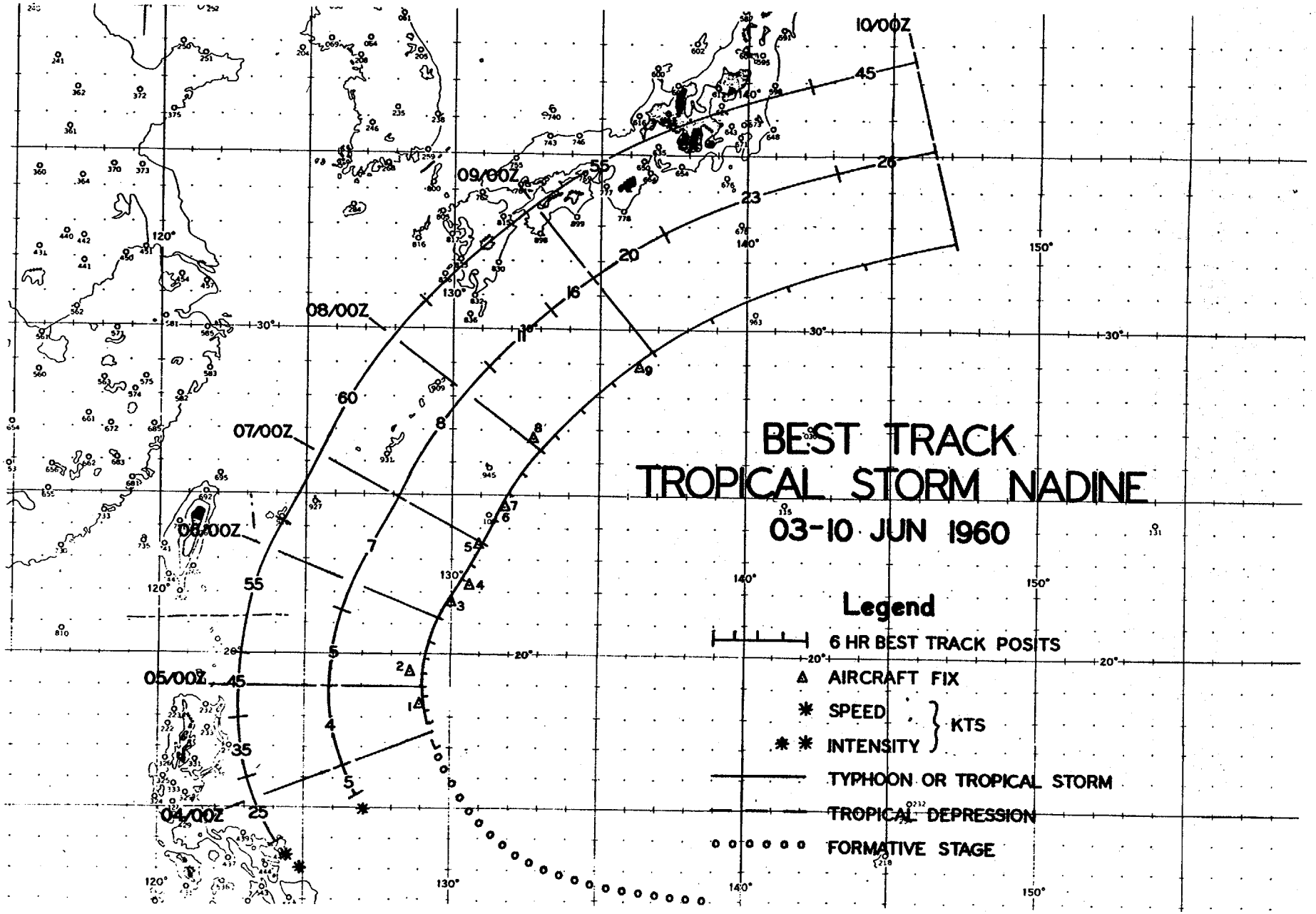
D. TROPICAL STORM NADINE (031800Z-100000Z JUNE 1960)

On 2 June at 1800Z a definite tropical cyclonic circulation was evident on the surface chart in the vicinity of 15N 131E. This low remained quasi-stationary for the next 18 hours while successive ship weather reports indicated a gradual decrease in pressure. At 031800Z the first warning was issued on T.D. 5, which later became T.S. NADINE.

For the first 30 hours NADINE moved N at an average speed of 5 kts. By 040600Z the central pressure of the depression appeared to be 1000 mb; one ship reported 25 kt surface winds, and two other ships reported 20 kts. The depression was then 400 mi E of northern Luzon, moving toward Okinawa. NADINE appeared to be intensifying at this time, although the first tropical storm warning was not issued until 050600Z. At 050000Z a ship very close to the center of the storm had a pressure of 992.3 mb. The central pressure was probably 990 mb, and NADINE was undoubtedly of tropical storm intensity at this time. The 050430Z fix indicated the maximum surface winds to be 55 kts, and the 050606Z fix indicated maximum winds of 45 kts. A ship on the 050600Z chart reported 45 kt surface winds as did another ship at 060000Z. After 051200Z the storm appeared to be moving slightly E of due N. A P2V (Neptune) reconnaissance aircraft reported maximum surface winds of 63 kts and 76 kts at 060220Z and 060310Z respectively. This plane also reported heavy weather in the NE quadrant of the storm. These two fixes definitely indicated that NADINE was moving NE at 060600Z and not towards Okinawa. The three fixes that were made on 7 June reported winds of 60, 60 and 65 kts, respectively. These fixes further confirmed that the storm was moving NE, and it may well have been of typhoon intensity at that time. As NADINE approached 30N, it began to accelerate. By 091200Z the storm showed signs of weakening and of becoming extratropical. The final warning was issued at 100000Z.

NADINE's existence aloft was first indicated by a cyclonic circulation at the 700 mb level between Koror and Guam at 010000Z. Successive maps indicated that the system was becoming more intense as the 700 mb heights decreased. At the 500 mb level the heights were below normal at 011200Z but it was not until 050000Z that it could be definitely established that NADINE was closed through the 500 mb level. NADINE followed the 300 mb flow as it moved around the western side of a high. By 100000Z when the final warning was issued NADINE's height extended to less than 10,000 ft.

A total of 26 warnings were issued covering a period of 6 days 6 hours. During this period, NADINE traveled 1450 mi at an average speed of 10 kts or 232 mi per day; its slowest speed was 4 kts on 4 June and its maximum speed was 26 kts on 9 June.


10/00Z
09/00Z
08/00Z
07/00Z
06/00Z
05/00Z
04/00Z
BEST TRACK
TROPICAL STORM NADINE
03-10 JUN 1960
Legend
6 HR BEST TRACK POSITS
AIRCRAFT FIX
SPEED
INTENSITY
KTS
TYPHOON OR TROPICAL STORM
TROPICAL DEPRESSION
FORMATIVE STAGE

RECONNAISSANCE AIRCRAFT FIXES - TROPICAL STORM NADINE

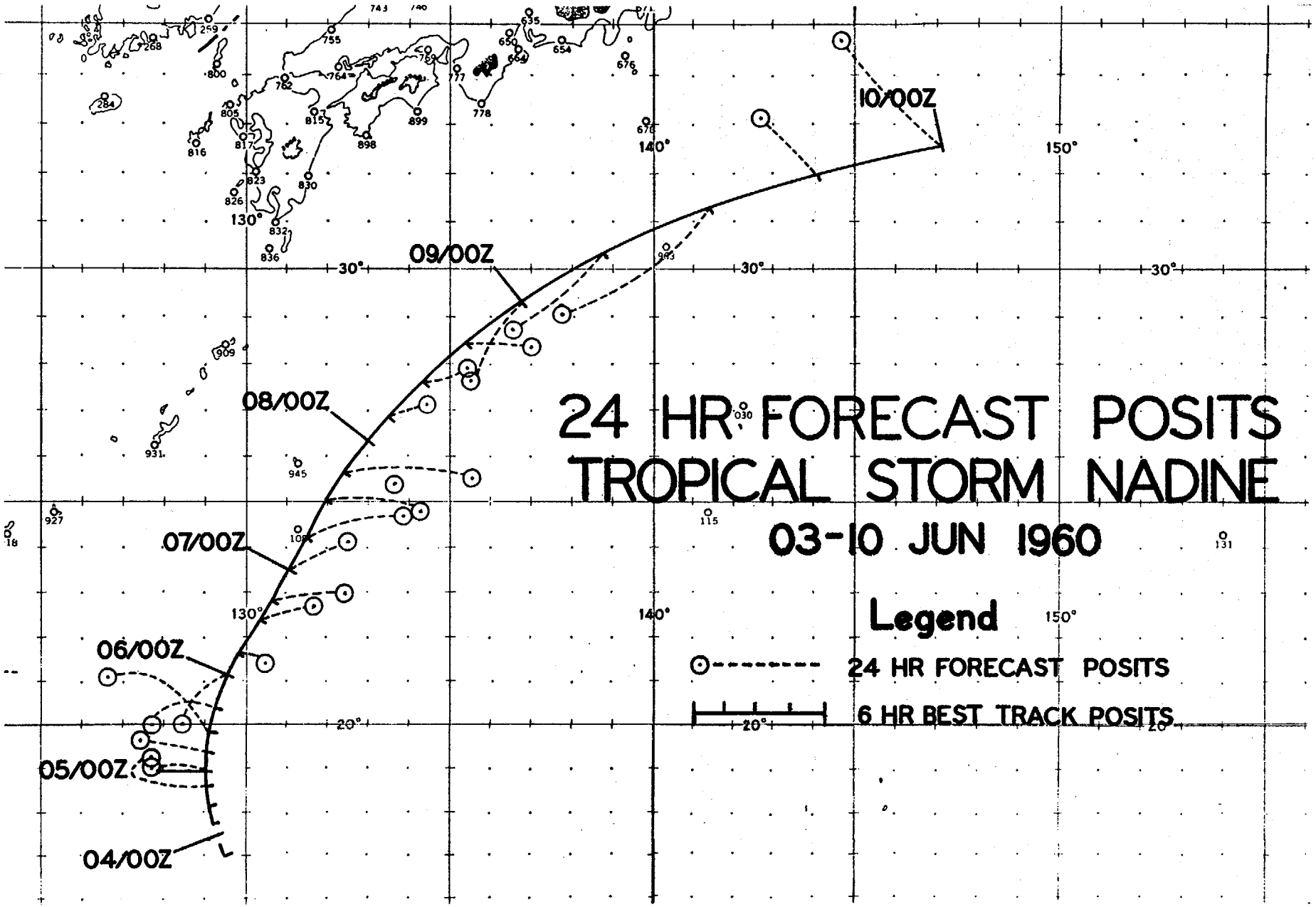
FIX NO.	TIME	LAT.	LONG.	UNIT METHOD & ACCY	MIN SLP MBS	MAX SFC WND	MIN 700MB HGT	MAX 700MB WND	700MB TT/Td (°C)	EYE CHARACTERISTICS
1	050430Z	18.4N	129.1E	VW1-R---	- -	- -	- -	- -	- - -	WEAK CIRC BANDS, OPEN NW
2	050606Z	19.4N	128.7E	USN-P---	989	45	- -	- -	- - -	DIA 18 MI FAIRLY WELL DEFINED
3	060220Z	21.7N	130.0E	USN-P---	1000	63	- -	- -	- - -	CIRC DIA 140 MI
4	060310Z	22.1N	130.6E	USN-P---	1000	76	- -	- -	- - -	- - - - - - - - - - - - - - -
5	070045Z	23.5N	131.0E	USN-P-10	967	60	- -	- -	- - -	DIA 60 MI WALL CLDS EAST SEMI-CIR
6	070915Z	24.7N	131.8E	VW1-P-05	- -	60	- -	*20	- - -	- - - - - - - - - - - - - - -
7	071000Z	24.7N	131.8E	USN-P-10	996	65	- -	- -	- - -	- - - - - - - - - - - - - - -
8	080459Z	26.7N	132.8E	USN-R-20	- -	- -	- -	- -	- - -	- - - - - - - - - - - - - - -
9	082118Z	28.9N	136.3E	56-P-03	994	40	- -	34	21/20	CIRC

* MAX 850 MB WND

TROPICAL STORM NADINE 03-10 JUNE 1960
POSITION AND FORECAST VERIFICATION DATA

DTG	STORM POSITION LAT.	LONG.	24 HR. ERROR DEG. DISTANCE	48 HR. ERROR DEG. DISTANCE
031800Z	17.0N	129.6E	- - - -	- - - -
040000Z	17.5N	129.4E	- - - -	- - - -
040600Z	17.8N	129.3E	- - - -	- - - -
041200Z	18.2N	129.2E	- - - -	- - - -
041800Z	18.6N	129.1E	- - - -	- - - -
050000Z	19.0N	129.0E	- - - -	- - - -
050600Z	19.4N	129.0E	- - - -	- - - -
051200Z	19.9N	129.1E	- - - -	- - - -
051800Z	20.4N	129.3E	- - - -	- - - -
060000Z	21.1N	129.6E	- - - -	- - - -
060600Z	21.7N	129.9E	112-78	- - - -
061200Z	22.3N	130.4E	072-75	- - - -
061800Z	22.9N	130.7E	087-88	- - - -
070000Z	23.5N	131.1E	063-78	- - - -
070600Z	24.2N	131.5E	075-134	105-223
071200Z	25.0N	132.0E	095-123	087-256
071800Z	25.6N	132.5E	095-56	095-246
080000Z	26.3N	133.0E	145-71	075-195
080600Z	26.9N	133.5E	072-41	074-275
081200Z	27.7N	134.4E	076-58	087-210
081800Z	28.4N	135.4E	090-84	094-260
090000Z	29.3N	136.9E	219-130	134-153
090600Z	30.3N	138.9E	236-154	114-60
091200Z	31.2N	141.3E	237-223	183-48
091800Z	31.9N	144.1E	320-97	250-39
100000Z	32.6N	147.1E	320-178	243-390

AVERAGE 24 HOUR ERROR 104 MI
AVERAGE 48 HOUR ERROR 196 MI


24 HR FORECAST POSITS
TROPICAL STORM NADINE
03-10 JUN 1960
Legend
24 HR FORECAST POSITS
6 HR BEST TRACK POSITS
10/00Z
09/00Z
08/00Z
07/00Z
06/00Z
05/00Z
04/00Z
L
140°
150°
130°
30°
20°